

Inputs and Assumptions for NARG		
<i>Inputs</i>	Data Source Assumptions	
	2005 Natural Gas Assessment	Proposed CEC 2007 Natural Gas Assessment
Alternative/Substitute Fuel Price Forecast	EIA AEO High "A" Oil Price 2004	EIA AEO High Oil Price 2007
Discount rate/rate of return	6%	6%
Interest rate for NPV calculation	6%	6%
Operating Life	30 - 50 years	30 - 50 years
Sales Tax Rate	0	0
Efficiency Unit Conversion	Depending on Pipeline, 1 to 3 % loss	Depending on Pipeline, 1 to 3 % loss
O&M Learning Rate	Turned Off, i.e., no cost reduction will occur as a result of technological innovations.	Do not plan to change input
O&M Learning Limit	Turned Off, i.e., no cost reduction will occur as a result of technological innovations.	Do not plan to change input
Book Life	40 Years	40 Years
Tax Life	40 Years	40 Years
Spending Lead	2 - 4 years, i.e., the time it take before the full effect of a capital expenditure is incorporated into the model's calculations	Do not plan to change input
Time Available	Various years. This input can be adjusted to any required year. It is the first year within the forecast horizon that capacity additions can occur.	Various years. This input can be adjusted to any required year. It is the first year within the forecast horizon that capacity additions can occur.
Model Timepoints	Annual: 2001 - 2015; Bi-annual: 2015 - 2025	Annual: 2004 - 2020; Bi-annual: 2020 - 2036
Fraction Capital Expensed	0%	0%
Equity Fraction	100%	100%
ROE	10%	10%
Income Tax Rate	40%	40%
Investment Tax Credit	0%	0%
Property Tax and Insurance Rate	4%	4%
Pipeline efficiency rate/fuel use	Ben Schlesinger Contract 2003	Update with Altos work. Depending on pipeline, varies between 1 to 4%
Supply capital cost data	NPC - 2003 Cost Estimates	Updated NPC cost to 2006 Dollars using 2005 supply cost as reference.
Supply O&M cost data	NPC - 2003 Cost Estimates	Updated NPC cost to 2006 Dollars using 2005 supply cost as reference.
Production profile/decline curve	10%	Do not plan to change input
Backstop resource cost and quantity	Coal Gasification at \$10/Mcf (2000 Dollars)	Coal Gasification: \$8.00/Mcf (2006 Dollars)
Resources - growth to known reserves	NPC: Reserve appreciation	Do not plan to change input
Resources - yet to find reserves	NPC: Undiscovered potential resources	Reduce resources based on Altos modification of NPC work
Resource estimate	NPC See Attached Table	Reduce resources based on Altos modification of NPC work
Artic Resources Development	Development will match pipeline startup	Development will match pipeline startup
Resource Access and Development	NPC Resource Available for Development	Altos modification of NPC gas resources available for Development
Pipeline tariff	Ben Schlesinger Contract 2003	Update with Altos costs using 2005 as reference cost.
Pipeline capacity (investment additions)	Ben Schlesinger Contract 2003	Update with Altos costs using 2005 as reference cost.
Artic pipeline and route	ANS - 2016; MacKenzie - 2013	ANS - Does Not Come on; MacKenzie - 2020
LNG penetration (on-line date of new receiving terminals)	Only facilities under construction Sempra Cameron 1.5 Bcfpd (2008), Costa Azul Mexico 1.0 Bcfpd (2008). After 2010, NARG adds capacity	Gateway Energy Bridge completed. Facilities under construction are Sempra Cameron 1.5 Bcfpd (2008), Costa Azul Mexico 1 Bcfpd (2008). NARG adds capacity if required after 2010. No new capacity added in New England onshore. On the West Coast, new capacity additions occur after 2012 in Oregon and Southern California.

LNG costs (investment additions)	CEC: Staff's unpublished LNG study	Altos World Trade Model for LNG Imports: Liquefaction cost, transportation cost, and Regas cost included. Verified by Energy Commission staff
LNG capacity (investment additions)	CEC: Staff's unpublished LNG study	Altos World Trade Model for LNG Imports: Liquefaction, transportation, and Regas capacity included. Verified by Energy Commission staff
Natural gas storage facilities (capacities of working gas, injection, and withdrawal, costs for inventories, injection and withdrawal, investment additions, location)	N/A for Phase I Analysis	N/A for Phase I Analysis
Natural gas demand forecast - residential (population, population growth, GDP elasticity, price elasticity, gas use per household, number of households, market shares for space heating/water heating/space cooling, HDD and CDD)	Ken Medlock Demand Functions	Ken Medlock Demand Functions. Update parameters, where appropriate
Natural gas demand forecast - commercial (building space growth, GDP elasticity, price elasticity, gas use per establishment, number of establishments market shares for space heating/water heating/space cooling)	Ken Medlock Demand Functions	Ken Medlock Demand Functions. Update parameters, where appropriate
Natural gas demand forecast - industrial (GDP elasticity, price elasticity, gas use per establishment, number of establishments, market shares for process heat, space heating, water heating, space cooling)	Ken Medlock Demand Functions	Ken Medlock Demand Functions. Update parameters, where appropriate
Natural gas demand forecast - electricity generation (the capacity mix over time, availability of capacity, capacity dispatch, electricity demand, alternate fuel costs, hydro availability, nuke availability, transmission characteristics).	EIA/NEB/WIEB/CEC	Western United States: CEC Electric Office Mid-Continent; Eastern United States: EIA AEO 2006 preliminary data, if available. If not, use 2005.
Natural gas demand electric power generation	Western United States CEC Electric Office Mid-Continent and Eastern United States EIA AEO 2004	Western United States: CEC Electric Office Mid-Continent; Eastern United States: EIA AEO 2006 preliminary data, if available. If not, use 2005.
*Major analytical results are gas production by basin, infrastructure usage, and prices - both relative and levels.		
Natural Gas Demand Parameter Used outside of NARG to Calculated initial Demand Values		
Gross National Product United states		Update with latest data
Gross National Product Canada		Update with latest data
Industrial Production Index United States		Update with latest data
Industrial Production Index Canada		Update with latest data
Heating Degree Days	Used 15 year average by sub-region held constant through out forecast period	Used 15 year average by sub-region held constant through out forecast period (no change)
Population	U.S. and Canada census data	U.S. and Canada census data update if new data available
Oil Price	EIA AEO High "A" Oil Price 2004	EIA AEO High Oil Price 2007

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